2007 Annual
Drinking Water Quality Report
Beale Air Force Base,
California

(Este informe contiene información muy importante sobre su agua potable. Tradúzcalo o hable con alguien que lo entienda bien.)

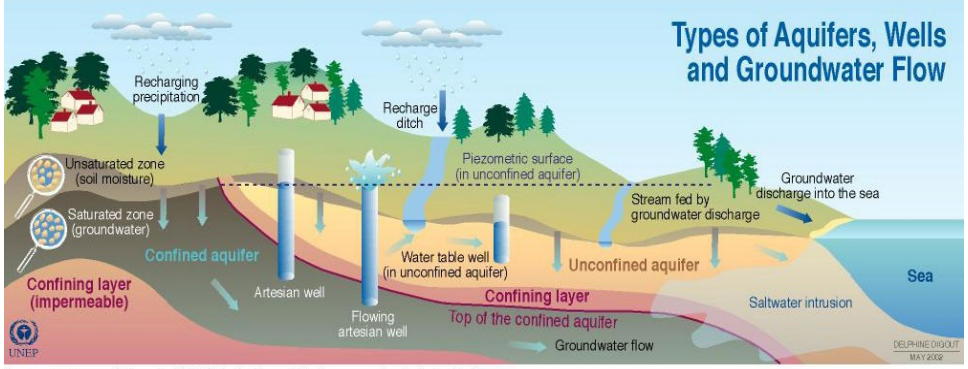
Although the base does not hold public meetings on its distribution systems, we are available to address any questions you may have. Please contact Beale's Public Affairs Office at 530-634-2793. We encourage our valued customers to be informed about their water utility.

Housing residents should contact the Military Family Housing Office 530-634-8887, with any water concerns. Dormitory residents should contact their building manager.

TEAM BEALE

- Team Beale is very pleased to provide you with this year's **Annual Water Quality Report**. We want to keep you informed about the excellent water and services we have delivered to you over the past year. Our goal is, and always has been, to provide you a safe and dependable supply of drinking water.
- The California Department of Health Services (CDHS), phone number: 530-224-4800, completed an assessment of our drinking water source in April 2001. The Drinking Water Source Assessment Program (SWAP) requires permitted sources to be evaluated for susceptibility to various potential contaminating activities. This evaluation was performed for all of the Base's nine well water sources.
- The evaluation indicates that the operation of a military installation ranks the highest among the potential contaminating activities. A copy of the completed assessment is available at the DHS District office or at the Environmental Flight Offices. You may request a summary of the assessment be sent to you by contacting the DHS district engineer or the Environmental Flight Compliance Element Chief, Mr. Greg Miller, at (530) 634-3135.
- This report is a snapshot of last year's water quality. Included are details about where your water comes from, what it contains, and how it compares to State standards. The 9th Medical Group and the 9th Civil Engineer Squadron are committed to providing you with information because informed water customers are our best allies.
- We at Beale work around the clock to provide top quality water to every tap. We ask that all our customers help us protect our water sources, which are the heart of our community, our way of life, and our children's future.

WHERE DO WE GET OUR DRINKING WATER?



Source: Environment Canada, 2001 (Adapted from: http://www.ec.ca/water/index.htm).

- *Beale AFB draws its water from nine deep-water wells. This ground water originates deep in the Sierra Nevada Mountain Range and slowly moves through the layers of the earth until it reaches the well field. The wells in the well field pump the water to reservoirs and tanks through which elevation and gravity provide pressure to the water system. All nine of our wells are located over the same aquifer and every well has distinct characteristics depending on the surrounding rock and soil. Water from each of our wells contain suspended manganese and iron minerals. The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As the water travels over the surface of the land and through the ground, it dissolves naturally occurring minerals and materials, and can pick up substances resulting from the presence of animals or human activity. Due to the exceptional quality of this groundwater source, chlorine disinfection is the only treatment process required to produce a safe product for our community. However, the Beale AFB drinking water treatment plant removes the excess manganese and iron from our water through filtration.*

(A) ***Microbial contaminants***, *such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.*
(B) ***Inorganic contaminants***, *such as salts and metals, which can be naturally-occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.*
(C) ***Pesticides and herbicides***, *which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.*
(D) ***Organic chemical contaminants***, *including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems.*
(E) ***Radioactive contaminants***, *which can be naturally occurring or be the result of oil and gas*

Your Drinking Water and Your Health

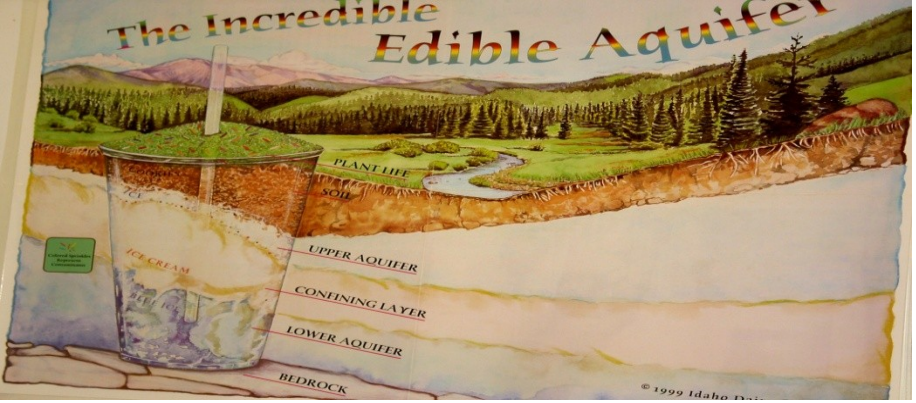
In order to ensure that tap water is safe to drink, the Environmental Protection Agency (EPA) prescribes regulations, which limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants.

The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline (800)426-4791.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infan particularly at risk from infections. These advice about drinking water from their he providers. EPA/CDC guidelines on appro lessen the risk of infection by Cryptospor microbiological contaminants are availab Drinking Water Hotline (800-426-4791).

SSgt Thomas Hefty, Bioenvironmental Engineering Office, testing drinking water



THE INCREDIBLE EDIBLE AQUIFER FOR KIDS!!

- **Objective**
  To teach about the geologic formations in an aquifer, how pollution can get into groundwater and how pumping can cause a decline in the water table.
- **Background**
  This activity is a fun and easy way to understand the geology of an aquifer. You will build your own edible aquifer, learn about confining layers, contamination, recharge and water tables.
- **Materials Needed**
- Blue/red food coloring (or substitute with red, grape or orange soda), Vanilla ice cream (one 5-quart bucket yields 60 aquifers at one generous scoop per student), Clear soda pop, Small gummy bears, chocolate chips, crushed cookies, cereal, crushed ice or other material to represent sand and gravel, Variety of colored cake decoration sprinkles and sugars, Drinking straws, Clear plastic cups, Ice Cream scoop, Spoons
- **Activity Steps**
  1. Review: What is ground water?
- 2. Begin to construct your edible aquifer by filling a clear plastic cup 1/3 full with gummy bears, chocolate chips, or crushed ice (represents gravels and soils)
- 3. Add enough soda to just cover the candy/ice.
- 4. Add a layer of ice cream to serve as a "confining layer" over the water-filled aquifer. Discuss what a confining layer is/does.
- 5. Then add more "sand/gravel" on top of the "confining layer."
- 6. Colored sugars and sprinkles represent soils and should be sprinkled over the top to create the porous top layer (top soil).
- 7. Now add the food coloring to the soda. The food coloring represents contamination. Watch what happens when it is poured on the top of the "aquifer." Point out that the same thing happens when contaminants are spilled on the earth's surface.
- 8. Using a drinking straw, drill a well into the center of your aquifer.
- 9. Slowly begin to pump the well by sucking on the straw. Watch the decline in the water table.
- 10. Notice how the contaminants can get sucked into the well area and end up in the groundwater by leaking through the confining layer.
- 11. Now recharge your aquifer by adding more soda which represents a rain shower.
- 12. Review what you have learned as you enjoy eating your edible aquifer
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WE ARE PLEASED TO ANNOUNCE THAT OUR DRINKING WATER MEETS ALL FEDERAL AND STATE REQUIREMENTS!!

SAMPLING RESULTS SHOWING THE DETECTION OF TOTOAL COLIFORM BACTERIA

CONTAMINANT	SAMPLE DATE	LEVEL FOUND	MCL	PHG (MCLG)	TYPICAL SOURCE OF CONTAMINANT
* TOTAL COLIFORM BACTERIA	2007	1	1 PER MONTH	0	COLIFORMS ARE NATURALLY PRESENT IN THE ENVIRONMENT

SAMPLING RESULTS SHOWING THE DETECTION OF LEAD & COPPER

LEAD & COPPER	NO. OF SAMPLES COLLECTED-JAN 2007	90th PERCENTILE LEVEL DETECTED	NO. SITES EXCEEDING THE AL	AL	PHG (MCLG	TYPICAL SOURCE OF CONTAMINANT
**LEAD (ppb)	20	ND	0	15	2	Internal corrosion of household water plumbing systems; discharges from industrial manufadcturers; erosion of natural deposits
**COPPER (ppb)	20	0.084	0	1.3	0.17	Internal corrosion of household water plumbing systems; erosion of natural deposits; leaching from wood preservatives

DETECTED REGULATED DRINKING WATER CONTAMINANTS WITH PRIMARY MCLs

CONTAMINANT (REPORTING UNITS)	SAMPLE DATE	AVERAGE LEVEL DETECTED	RANGE OF DETECTION	MCL	PHG (MCL G)	TYPICAL SOURCE OF CONTAMINANT
ARSENIC (ppb)	2007	ND	ND-6.0	10	0.004	EROSION OF NATURAL DEPOSTIS; FUNOFF FROM ORCHARDS, GLASS, AND ELECTRONICS PRODUCTION WASTES
CHROMIUM (ppb) (total)	2007	ND	ND-2.0	50	100	DISCHARGE FROM STEEL AND PULP MILLS AND CHROM PLATING; EROSION OF NATURAL DEPOSTIS
***FLOURIDE (ppm) (treated water)	2007	1.07	0.54-1.6	2	1	EROSION OF NATURAL DEPOSTIS; WATER ADDITIVE THAT PROMOTES STRONG TEETH; DISCHARGE FROM FERTILIZER AND ALUMINUM FACTORIES
MERCURY (ppb) (only at one well, #8)	2007	ND	ND-1.3	2	1.2	EROSION OF NATURAL DEPOSTIS; DISCHARGE FROM REFINERIES AND FAACTORIES; RUNOFF FROM LANDFILLS AND CROPLAND
NITRATE (NO3) (ppm)	2007	3.68	1.9-6.2	45	45	RUNOFF/LEACHING FROM FERTILIZER USE; LEACHING FROM SEPTIC TANKS AND SEWAGE; EROSION OF NATURAL DEPOSTIS
CHLORINE (distribution system)	2007	0.81	0.33-1.83	4	4.0	DRINKING WATER DISINFECTANT ADDED FOR TREATMENT

DETECTED REGULATED DRINKING WATER CONTAMINANTS WITH SECONDARY MCLs

CONTAMINANT (REPORTING UNITS)	SAMPLE DATE	AVERAGE LEVEL DETECTED	RANGE OF DETECTION	MCL	PHG (MCLG)	TYPICAL SOURCE OF CONTAMINANT
CHLORIDE (ppm)	2007	ND	ND-9.0	500	NONE	RUNOFF/LEACHING FROM NATURAL DEPOSITS
TOTAL DISSOLVED SOLIDS (ppm)	2007	ND	ND-420	1000	NONE	RUNOFF/LEACHING FROM NATURAL DEPOSITS
SULFATE (ppm)	2000, 2001	10.1	0.5-105	500	NONE	RUNOFF/LEACHING FROM NATURAL DEPOSITS; INDUSTRIAL WASTES
COLOR (units)	2000, 2001	2.2	0-15	15	NONE	NATURALLY OCCURING MATERIALS

DETECTED UNREGULATED DRINKING WATER CONTAMINANTS

CONTAMINANT (REPORTING UNITS)	SAMPLE DATE	AVERAGE LEVEL DETECTED	RANGE OF DETECTION	MCL	PHG (MCLG)	TYPICAL SOURCE OF CONTAMINANT
HARDNESS (ppm)	2000, 2001	118.4	52-240	NONE	NONE	GENERALLY FOUND IN GROUND AND SURFACE WATER
SODIUM (ppm)	2000	20	14-25	NONE	NONE	NATURALLY OCCURRING SALT IN WATER
VANADIUM (ppb)	2007	7	ND-21.0	NONE	NONE	OCCURS IN CARBON CONTAINING DEPOSITS SUCH AS DRUDE OIL, COAL, OIL SHALE AND TAR SANDS
BORON (ppb)	2007	99.16	ND-888	1000 (NL)	NONE	NATURALLY OCCURRING. AND ALSO FROM THE PRODUCTION OF CONSUMER AND AGRICULTURAL PRODUCTS
CHROMIUM VI (ppb)	2001	ND	ND-1.5	NONE	NONE	DISCHARGE FROM REFINERIES, FACTORIES, AND INDUSTRIAL WASTE

SUMMARY INFORMATION FOR CONTAMINANTS EXCEEDING AN MCL OR AL

*THERE WAS A POSITIVE TOTAL COLIFORM SAMPLE IN 2007 AND ONLY ONE FOLLOW UP SAMPLE WAS COLLECTED. THREE FOLLOW UP SAMPLES ARE REQUIRED, A FAILURE LETTER WAS SENT.
**LEAD AND COPPER SAMPLING SCHEDULED FOR SUMMER 2006 WAS NOT ACCOMPLISHED. IT WAS COMPLETED IN JAN 2007.
***BEALE AFB ADDS FLUORIDE TO THE BASE DRINKING WATER.
^STAGE 2 DISINFECTANT BY-PRODUCT SAMPLING SCHEDULED FOR 2007 WAS NOT ACCOMPLISHED. IT HAS BEEN RESCHEDULED FOR 2008.

DETECTED CONTAMINANT TABLES: THE TABLES IN THE PREVIOUS THREE SLIDES LIST ALL OF THE DRINKING WATER CONTAMINANTS THAT WERE DETECTED DURING THE MOST RECENT SAMPLING OF THE CONSTITUENT. THE PRESENCE OF THESE CONTAMINANTS IN THE WATER DOES NOT NECESSARILY INDICATE THAT THE WATER POSES A HEALTH RISK. THE CALIFORNIA DEPARTMENT OF HEALTH (CDH) REQUIRES US TO MONITOR FOR CERTAIN CONTAMINANTS LESS THAN ONCE PER YEAR BECAUSE THE CONCENTRATIONS OF THESE CONTAMINANTS ARE NOT EXPECTED TO VARY SIGNIFICANTLY FROM YEAR TO YEAR. SOME OF THE DATA, THOUGH REPRESENTATIVE OF THE WATER QUALITY, ARE MORE THAN ONE YEAR OLD.

DEFINITIONS

- **Maximum Contaminant Level (MCL):** The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the Pugs (or MCLs) as is economically and technologically feasible. Secondary MCLs are set to protect the odor, taste, and appearance of drinking water.
- **Primary Drinking Water Standards (PDWS):** MCLs for contaminants that affect health along with their monitoring and reporting requirements, and water treatment requirements.
- **Secondary Drinking Water Standards (SDWS):** MCLs for contaminants that affect taste, odor, or appearance of the drinking water. Contaminants with SDWSs do not affect the health at the MCL levels.
- **N/A:** not applicable
- **NL:** Notification Level
- **ND:** not detectable at testing limit
- **Public Health Goal (PHG):** The level of a contaminant in drinking water below which there is no known or expected risk to health. PHGs are set by the California Environmental Protection Agency.
- **Maximum Contaminant Level Goal (MCLG):** The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs are set by the U.S. Environmental Protection Agency (USEPA).
- **Regulatory Action Level (AL):** The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
- **ppm:** parts per million or milligrams per liter (mg/L)
- **ppb:** parts per billion or micrograms per liter (ug/L)
- **pCi/L**: Pico curies per liter is a measure of radioactivity